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NASA Procedural Requirements

COMPLIANCE IS MANDATORY**NPR 2570.1C**

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[Printable Format \(PDF\)](#)[Request Notification of Change \(NASA Only\)](#)**Subject: NASA Radio Frequency (RF) Spectrum Management Manual****Responsible Office: Human Exploration and Operations Mission Directorate**

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Appendix D: Spectrum Certification and Value of Spectrum

D.1 *Spectrum certification.* NASA will obtain a certification by the NTIA, Department of Commerce, which is responsible for assigning spectrum to Federal users, that the radio frequency required can be made available before NASA submits estimates for the development or procurement of major radio spectrum-dependent communication-electronics systems (including all systems employing space satellite techniques). The NTIA may also review the Agency's economic analyses during the certification process.

D.2 OMB Circular A-11, Section 31.12, provides an example of a methodology to evaluate spectrum efficiency when considering alternatives for procuring systems, or when evaluating spectrum usage generally. In order to ensure compliance with the provisions of the Communications Act, and consistent with section 6411 of the Middle Class Tax Relief and Job Creation Act of 2012, OMB Circular No. A-11 (2012), Section 31.12, states that:

D.3 The value of radio spectrum required for telecommunications, radars, and related systems should be considered, to the extent practical, in economic analyses of alternative systems/solutions. In some cases, greater investments in systems could enhance Federal spectrum efficiency (e.g., purchase of more expensive radios that use less bandwidth); in other cases, the desired service could be met through other forms of supply (e.g., private wireless services or, use of land lines, or optical communications systems). Therefore, to identify solutions that have the highest net benefits, agencies should consider greater investment to increase spectrum efficiency along with cost-minimizing strategies.

D.4 To demonstrate consideration of the value of the relevant spectrum, agencies should indicate whether the system procured was the most spectrum "efficient" solution among those qualified bids (i.e., that met specified mission/operational requirements); if an agency is unable to so indicate, then the agency should indicate the investment difference between the solution chosen and the more spectrum "efficient" qualified solution. To further advance Federal stewardship of the spectrum resource, agencies should also include the following in their budget justifications for procurement of major spectrum-dependent communications systems:

- a. In a Request for Proposal (RFP) to procure the system, the requirement that respondents address spectrum "efficiency" factors (e.g., greater adjacent band compatibility, less use of bandwidth, etc.) and assess trade-offs between investment in equipment and spectrum requirements.
- b. Whether the system will share spectrum with other Federal or non-Federal existing systems/operations and, if so, the nature and extent of the sharing relationship.
- c. When proposing a new system, whether sharing an existing Federal system to meet the capability requirement is possible, or whether sharing capabilities of similar Federal users has been considered.
- d. When replacing systems, what improvements in spectrum "efficiency" and "effectiveness" exist compared to the prior system.
- e. Certification of consideration of non-spectrum dependent or commercial alternatives to meet mission/operational requirements.

D.5 The methodology does not attempt to measure or judge the overall benefits of a Federal activity nor does it attempt to establish a dollar value or auction price. Instead, the method outlined provides agencies a way to evaluate improvements in spectrum efficiency in implementing their required and essential activities. A sample of the questions to be considered is provided below. OMB also allows agencies to develop alternative methods for measuring spectrum efficiency and submit them to OMB for approval.

Economic Value Analysis Sample Questions

Agencies should consider the economic value analysis of this proposed radio spectrum:

1. Were alternative systems considered?
2. Did this include consideration of more expensive hardware which would use less spectrum?
3. Were commercial/private capabilities examined?
4. Were landlines considered?
5. What was the cost benefit for choosing this system?

Other mitigating factors, e.g., Physics of the spectrum required?

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